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(54) Title: SYSTEM AND METHOD FOR COMPENSATING MEMORYLESS NON-LINEAR DISTORTION OF AN AUDIO TRANSDUCER

(57) Abstract: A low-cost, real-time solution is presented for compensating memoryless non-linear distortion in an audio transducer. The playback audio system estimates signal amplitude and velocity, looks up a scale factor from a look-up table (LUT) for the defined pair (amplitude, velocity) (or computes the scale factor for a polynomial approximation to the LUT), and applies the scale factor to the signal amplitude. The scale factor is an estimate of the transducer's memoryless nonlinear distortion at a point in its phase plane given by (amplitude, velocity), which is found by applying a test signal having a known signal amplitude and velocity to the transducer, measuring a recorded signal amplitude and setting the scale factor equal to the ratio of the test signal amplitude to the recorded signal amplitude. Scaling can be used to either pre- or post-compensate the audio signal depending on the audio transducer.



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